Structured Genetic Algorithm Technique for Unit Commitment Problem

Abstract

This paper presents and identifies alternative strategies with the advantages of Genetic Algorithm for solving the Thermal Unit Commitment(UC) problem. A Parallel Structure has been developed to handle the infeasibility problem in astructured and improved Genetic Algorithm (GA) which provides an effective search and therefore greater economy. In addition, this proposed method lead us to obtain better performance by using both computational methods and classification of unit characteristics. Typical constraints such as system power balance, minimum up and down times, start up and shut-down ramps have been considered. A number of effective parameters related to UC problem have been identified. This method is developed and tested by using C# program. Tests have been performed on 10 and 20 units systems over a scheduling period of 24 hours. The final results are compared with those obtained genetic schemes in other same research.